

WHAT IS CLAIMED IS:

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5 1. A multilayer electronic part, comprising:
a multilayer body including a plurality of
stacked ceramic sheet layers, each layer having spaced
apart opposing main surfaces and being stacked in a
direction which is substantially perpendicular to the
main surfaces of the layers, the multilayer body
including first and second opposing main outer surfaces
defined by one of the opposing main surfaces of each
outermost stacked ceramic sheet layer;
10 a plurality of inner electrodes disposed on at
least some of the main surfaces of the ceramic sheet
layers;
a plurality of connectors disposed within the
multilayer body, the connectors electrically coupling
respective inner electrodes; and
a plurality of outer electrodes, at least one
of the outer electrodes disposed on each main outer
surface of the multilayer body, each of the outer
electrodes being electrically connected to at least one
20 of the inner electrodes via at least one of the
connectors.

5 2. The multilayer electronic part of claim 1,
wherein each connector includes an aperture extending
between main surfaces of a corresponding one of the
ceramic sheet layers, the aperture being substantially
filled with a conductive material which provides an
electrical connection from one of the inner electrodes,
through the ceramic sheet layer, to at least one of (i)

another inner electrode; and (ii) one of the outer electrodes.

3. The multilayer electronic part of claim 2, wherein each ceramic sheet layer, having one of the inner electrodes, includes at least one connector operable to electrically couple that inner electrode to at least one of (i) another inner electrode of another ceramic sheet layer; and (ii) one of the outer electrodes.

4. The multilayer electronic part of claim 3, wherein at least one of the ceramic sheet layers, having one of the inner electrodes, includes at least one connector which does not electrically couple that inner electrode to any other electrode.

5. The multilayer electronic part of claim 4, comprising N ceramic sheet layers, each being designatable as an n-th ceramic sheet layer, $n = 0, 1, 2, 3, \dots N$, the $n = 0$ and $n = N$ ceramic sheet layers being the outermost ceramic sheet layers, wherein substantially all of the ceramic sheet layers, other than the outermost ceramic sheet layers, include:

one of the inner electrodes disposed on a main surface thereof;

at least one first connector operable to electrically couple that inner electrode to another inner electrode of ceramic sheet layer which is at least one of (i) $n + 2$ layers away therefrom, and (ii) $n - 2$ layers away therefrom; and

at least one second connector which electrically couples electrodes of directly adjacent ceramic sheet layers together.

6. The multilayer electronic part of claim 5, wherein each of the outermost ceramic sheet layers include at least one connector operable to electrically couple the outer electrode thereof to the inner electrode of a directly adjacent ceramic sheet layer.

7. The multilayer electronic part of claim 6, wherein the ceramic sheet layers form a capacitor.

8. The multilayer electronic part of claim 3, wherein substantially all of the ceramic sheet layers, other than the outermost ceramic sheet layers, include:

one of the inner electrodes disposed on a main surface thereof;

at least one first connector operable to electrically couple that inner electrode to inner electrodes of directly adjacent ceramic sheet layers.

9. The multilayer electronic part of claim 8, wherein each of the outermost ceramic sheet layers include at least one connector operable to electrically couple the outer electrode thereof to the inner electrode of a directly adjacent ceramic sheet layer.

10. The multilayer electronic part of claim 8, wherein each of the inner electrodes are in the form of strip lines, each strip line forming a portion of a coil, the multilayer electronic part forming an inductor.

11. The multilayer electronic part of claim 1, wherein each of the ceramic sheet layers is a parallelepiped, end faces thereof defining respective thicknesses.

12. The multilayer electronic part of claim 11, wherein each ceramic sheet layer includes at least one end face disposed substantially perpendicular to and between the spaced apart opposing main surfaces, said ceramic sheet layers being stacked such that said end faces form a mounting surface oriented substantially parallel to the stacking direction.

13. The multilayer electronic part of claim 12, wherein the outer electrodes are sized and shaped to provide an electrical connection with a printed circuit board when the mounting surface is oriented proximate to the printed circuit board.

14. A method of producing a multilayer electronic part, comprising the steps of:

forming a plurality of mother ceramic sheet layers such that each mother ceramic sheet layer includes spaced apart opposing main surfaces;

forming a plurality of inner electrodes on the main surfaces of at least some of the mother ceramic sheet layers;

forming a plurality of connectors in the at least some mother ceramic sheet layers, at least some of the connectors being electrically coupled to corresponding inner electrodes;

forming a plurality of outer electrodes, at least one outer electrode on one main surface of each of a first and second one of the mother ceramic sheet layers;

stacking the mother ceramic sheet layers one atop the other in a direction which is substantially perpendicular to the main surfaces of the layers such

20 that: (i) the first and second ceramic sheet layers are
outermost layers and define first and second opposing
main outer surfaces of the stack, (ii) the connectors
electrically couple, respective inner electrodes to one
another, and each of the outer electrodes to at least one
25 of the inner electrodes;

press-bonding the plurality of stacked mother
ceramic sheet layers to obtain a mother multilayer body;
and

30 cutting the mother multilayer body into
separate multilayer bodies, each having: a plurality of
stacked ceramic sheet layers, a plurality of inner
electrodes, first and second outer electrodes on opposing
main outer surfaces of the multilayer body, and a
plurality of connectors electrically connecting at least
35 some of the electrodes together.

15. The method of producing the multilayer
electronic part of claim 14, further comprising the step
of baking the ceramic sheet layer one of before and after
the cutting step.

16. The method of producing the multilayer
electronic part of claim 15, wherein the step of forming
the connectors includes the steps of:

5 forming an aperture extending between main
surfaces of a corresponding one of the ceramic sheet
layers; and

filling the aperture with a conductive
material.

17. The method of producing the multilayer
electronic part of claim 16, wherein the step of forming

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the connectors results in each ceramic sheet layer, having one of the inner electrodes thereon, including at least one connector operable to electrically couple that inner electrode to at least one of (i) another inner electrode of another ceramic sheet layer, (ii) one of the outer electrodes, and (iii) no other electrode.